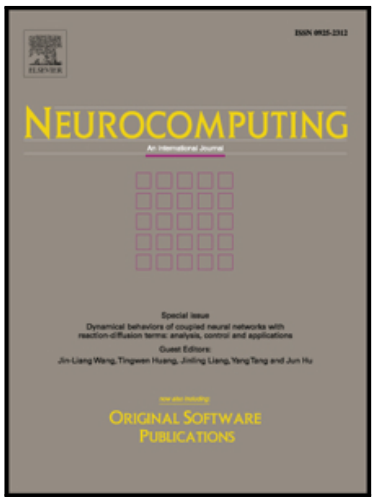

Bag-of-steps: Predicting Lower-limb Fracture Rehabilitation Length

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Bag-of-steps: Predicting Lower-limb Fracture Rehabilitation Length

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Abstract

Lower-limb fracture surgery is one of the major causes for autonomy loss among aged people. For care institutions, tackling with an optimized rehabilitation process is a key factor as it improves both the patients quality of life and the associated costs of the after surgery process.

This paper presents bag-of-steps, a new methodology to predict the rehabilitation length and discharge date of a patient using insole force sensors and a predictive model based on the bag-of-words technique. The sensors information is used to characterize the patients gait creating a set of step descriptors. This descriptors are later used to define a vocabulary of steps using a clustering method. The vocabulary is used to describe rehabilitation sessions which are finally entered to a classifier that performs the final rehabilitation estimation. The methodology has been tested using real data from patients that underwent surgery after a lower-limb fracture.

Keywords: medical informatics, gait analysis, bag-of-words, support vector

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